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UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	Yuriy Gmirya	Group Art Unit:	3681
Serial No.:	10/621,129	Examiner:	Le, David D.
Filed:	July 16, 2003		
Title:	**SPLIT-TORQUE GEAR BOX**		

Commissioner for Patents
Mail Stop Appeal Brief-Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF

This is in response to the Examiner's Answer mailed December 17, 2007.

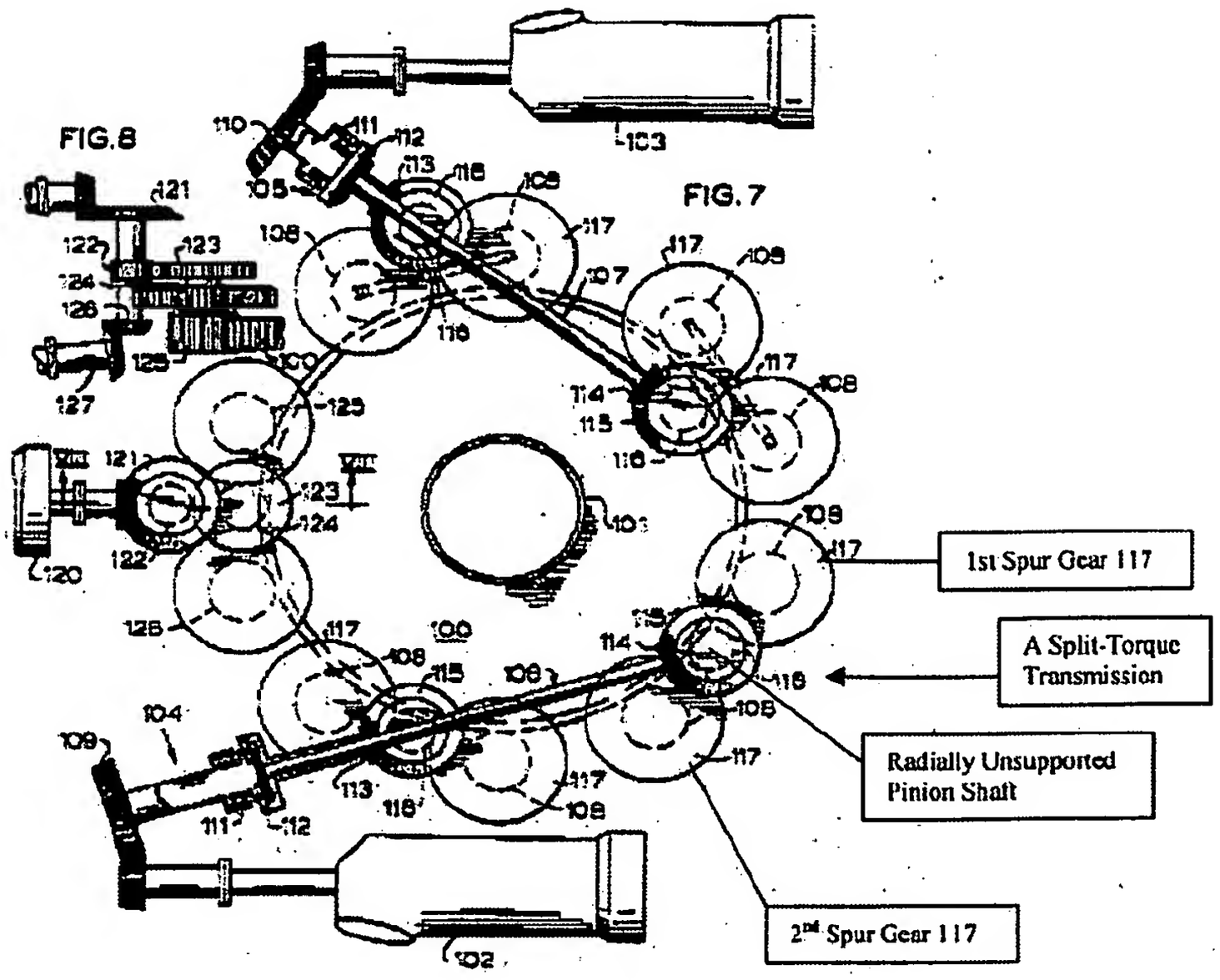
35 U.S.C. §112.

Appellant wishes to note that the Examiner has previously withdrawn the 35 U.S.C. § 112 rejections.

Continuation of 11. does NOT place the application in condition for allowance because: Applicant's argument, filed on 03 April 2007, has been considered. The 35 U.S.C. 112, second paragraph, is withdrawn. Examiner, however, maintains the 35 U.S.C. 102(b) rejection as set forth in the Final Office action dated 06 February 2007.

35 U.S.C. §102.

The Examiner continues to improperly interpret drive pinion 116 and 124 as a radially unsupported pinion shaft.

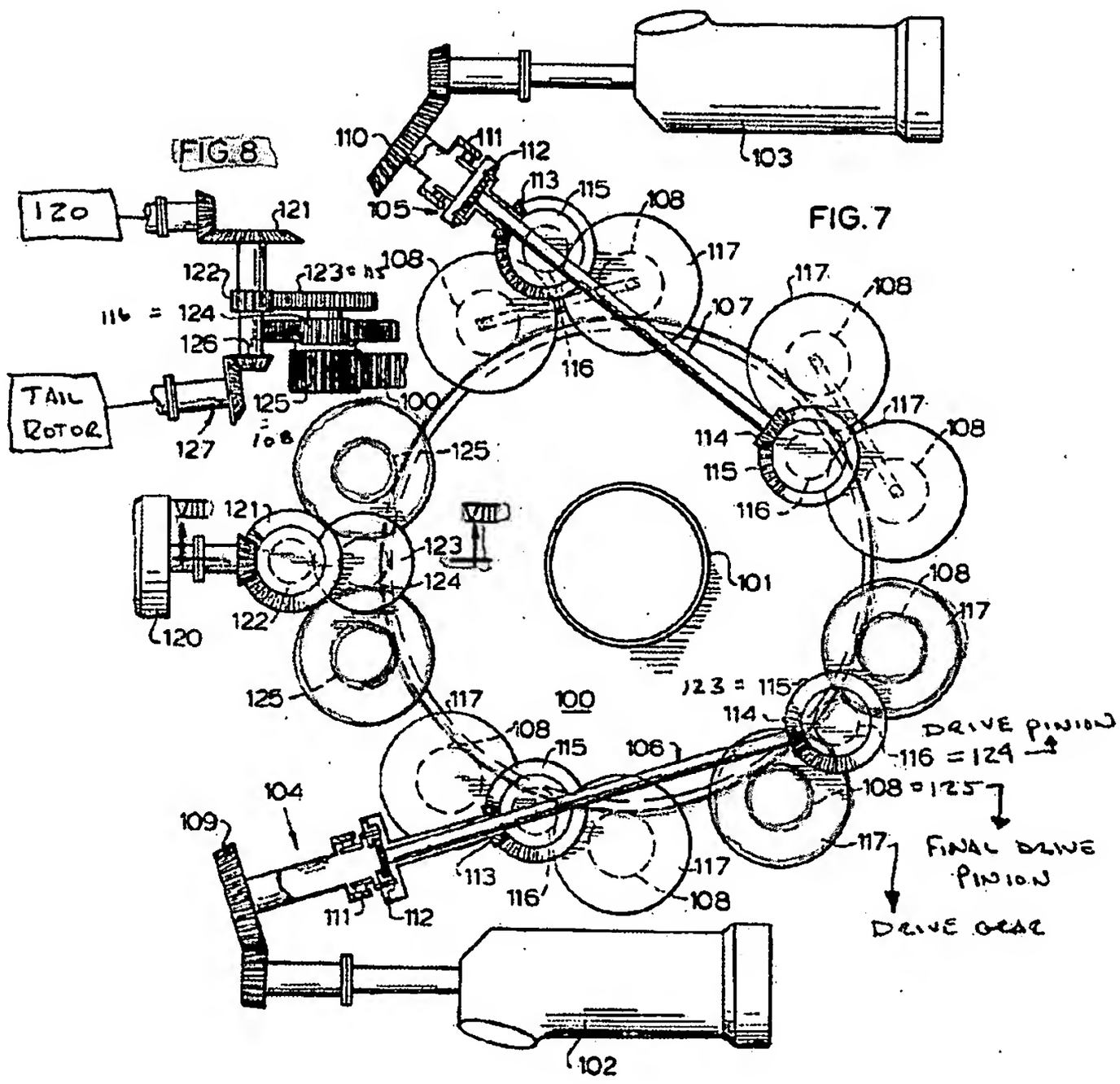


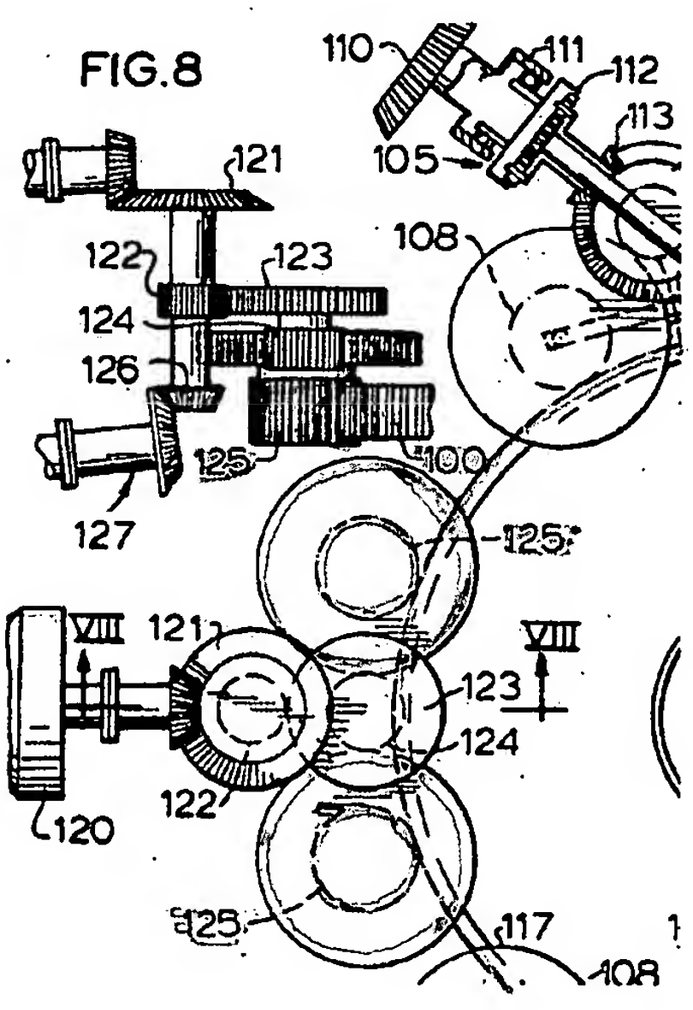
The area annotated by the Examiner in the lower half of Figure 7 associated with the side engine 102 is also the same drive arrangement connected with the central engine 120.

The embodiment of FIG. 7 illustrates how the inclination of the cross shafts 106 and 107 can be adjusted by alternate positions of the drive pinions 116 driven by the second stage reduction bevel gears 115. In the lower half of FIG. 7, each of the two second stage reduction bevel gears 115 and attached pinions 116 is on a line joining the axes of the corresponding adjacent final drive pinions 108. When the axis of the drive pinion 116 is collinear with the axes of the two dual drive gears 117 it powers, equal load-sharing between the two meshes and, consequently, the two associated final drive pinions 108 can be effected by allowing the drive pinion 116 to float freely between the two driven gears 117, its driving position set by the balance of two diametrically opposed mesh forces. Therefore, the dual drive arrangements shown in the lower half of FIG. 7 associated with the side engine 102 and also the collinear dual drive arrangement connected with the central engine 120, do not require a separate tooth load equalizer mechanism, such as the balance beam device 58 referred to above.

That is, to understand the impropriety of the Examiner's interpretation, Appellant directs the Board to Figure 8 which is indicated in the above-referenced section of White (4489625). Appellant has colorized Figures 7 and 8 to show the equivalent components and the fact that element 116 is not a radially unsupported pinion shaft as interpreted by the Examiner but a drive

pinion 116/124. Figures 7 and 8, when properly interpreted, in no way disclose or suggest a radially unsupported pinion shaft.





The Examiner also continually refers to column 11, lines 33-36 which state:

> **and, consequently, the two associated final drive pinions 108 can be effected by allowing the drive pinion 116 to float freely between the two driven gears 117, its driving position set by the balance of two diametrically**

Notably, drive pinion 116/124 extends from and is secured to reduction gears 115/123 to form a single unit (colored yellow above). Final drive pinion 108/125 drives combinor gear 100 through driven gears 117 which also form a complete unit (colored blue above). This description of to "float freely between the two driven gears 117" is simply equal load-sharing between the two meshes provided by the drive pinion unit (colored yellow above) which may float vertically along its axis of rotation.

> **With respect to FIGS. 7 and 8, a third central engine 120 is utilized in this transmission arrangement and is disposed along the longitudinal axis of the helicopter housing. The output from the third engine 120 is passed to an engine reduction bevel gear 121 disposed for rotation about a vertical axis. A drive pinion 122 is fixedly secured to the engine reduction bevel gear 121 for meshing with a second stage reduction gear 123 dis-**
>
> **11**
>
> **posed for rotation about a vertical axis and having a drive pinion 124 secured thereto for powering a dual drive arrangement similar to the dual drives powered by the side engines 102 and 103. This dual drive powered by the third engine 120 contains final drive pinions 125 for transmitting torque to the combining gear 100.**
>
> **A further bevel pinion 126 is fixedly secured to the third engine reduction bevel gear 121 to supply power to the tail rotor drive 127. The two final drive pinions 125 which supply power to the combining gear 100 thus carry the power from the central engine 120 less the tail rotor power.**

[Col. 10, line 61 – Col. 11, line 12]

As discussed in Appellant's appeal brief, *White* simply fails to disclose or suggest a floating pinion axis of rotation which provides a resilient characteristic. The *White* (4489625)

arrangement simply cannot provide a resilient characteristic from the mechanical arrangement when properly interpreted.

35 USC §103

Since each of the 35 U.S.C. §103 rejections utilize *White* (4489625) as a primary reference, and the primary reference is improperly interpreted as described above, each of the 35 U.S.C. §103(a) rejections must fail for at least the reasons described above.

For the above reasons, the rejections by the Examiner should be reversed.

Respectfully Submitted,

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APPENDIX

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pinion 116/124. Figures 7 and 8, when properly interpreted, in no way disclose or suggest a radially unsupported pinion shaft.